FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 24 to March 30, 2013 (Week 13)

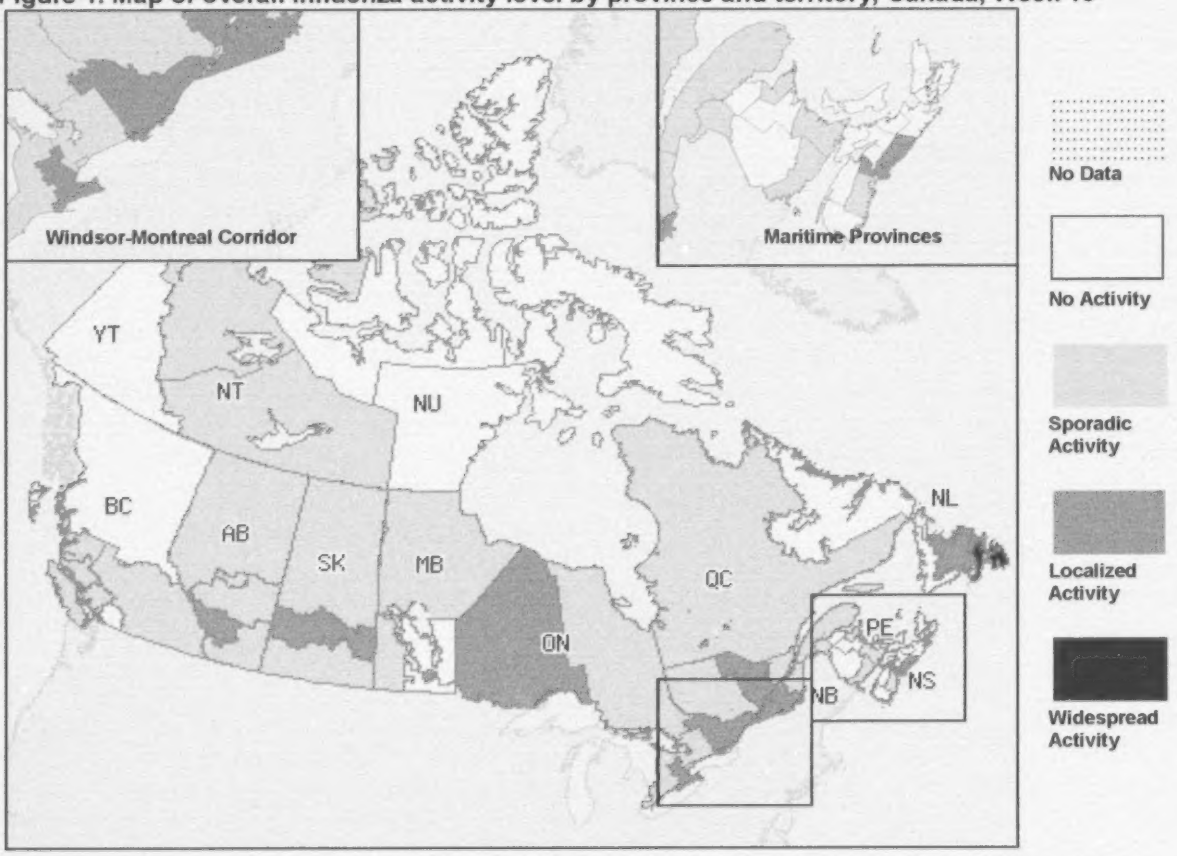
Overall Summary

- Overall influenza activity continued to decline. The number of regions reporting widespread or localized activity decreased in week 13.
- The ILI consultation rate increased slightly but was within the expected range for this time of year.
- Laboratory detections of influenza were similar to the past 2 weeks, and the proportion of influenza B continued to increase. Detections of other respiratory viruses were stable or decreasing compared to recent weeks.
- Between March 31 and April 5, the WHO reported 16 human cases of influenza A(H7N9) in China.

Influenza Activity (geographic spread) and Outbreaks

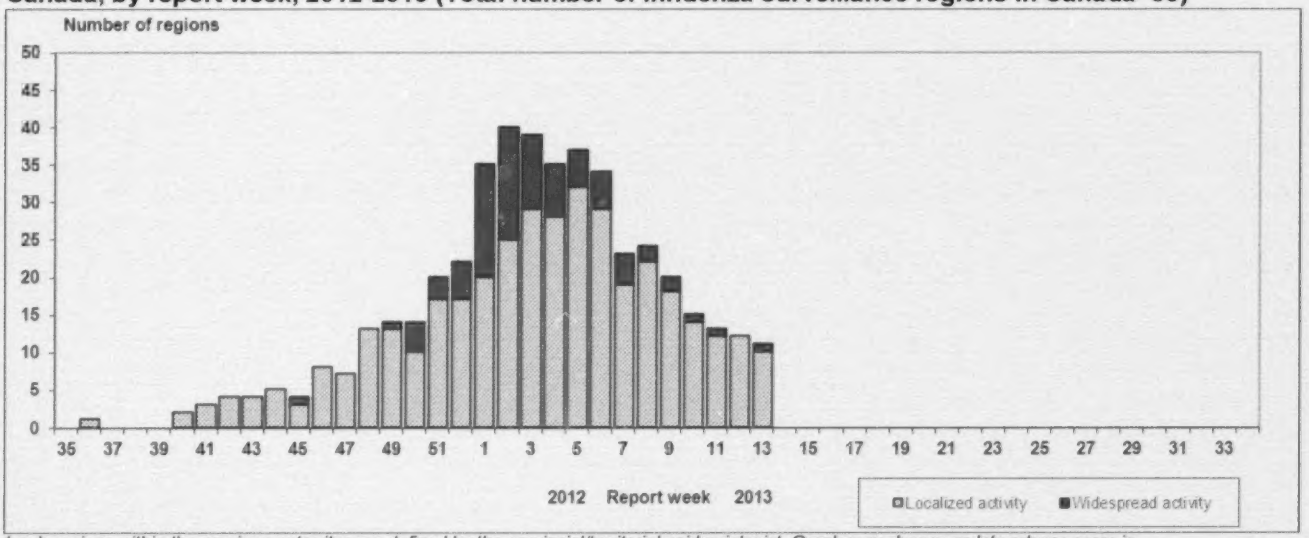
In week 13, one region in NL reported widespread activity and 10 regions [in AB(1), SK(1), MB(1), ON(3), QC(2), NS (1) and NL(1)] reported localized activity. The number of regions reporting widespread or localized activity decreased compared to the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Fourteen new influenza outbreaks were reported: nine in long-term-care facilities, two in school and three in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 13



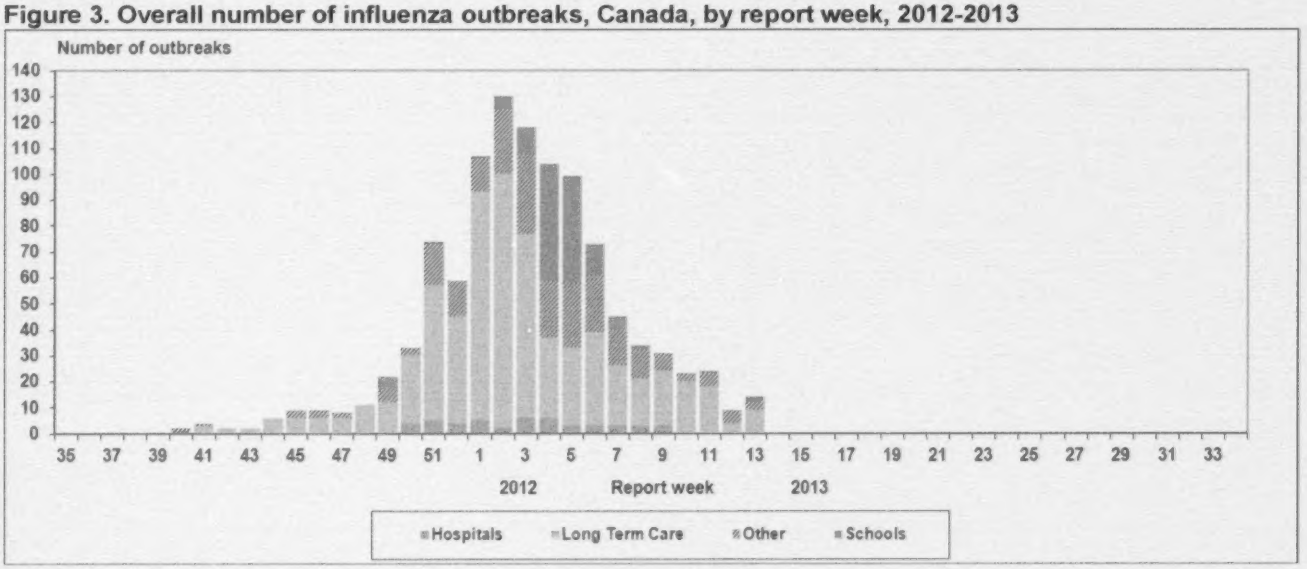
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests was stable for the third week in a row at 12.2% in week 13 (Figure 4). Among the influenza viruses detected in week 13 (n=433), 25.9% were positive for influenza A viruses [of which 26.8% were A(H1N1)pdm09, 16.1% were A(H3), and 57.1% were A(unsubtyped)] (Table 1). The proportion of influenza B detections has increased over the past 10 weeks from 2.1% in week 03 to 74.1% in week 13 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 91.0% influenza A [34.7% A(H3), 4.1% A(H1N1)pdm09 and 61.1% A(unsubtyped)] and 9.0% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 21,821 cases from 26 August 2012 to 23 March 2013 (Table 2). The proportion of cases by age group is as follows: 13.6% < 5 years; 9.0% between 5-19 years; 15.5% between 20-44 years; 16.9% between 45-64 years of age; 45.0% ≥ 65 years.

The percentage of tests positive for RSV decreased to 11.8% in week 13, continuing its decline from a peak in week 08. The percentage of positive tests also decreased for rhinovirus (8.9%); and was stable for parainfluenza (3.8%), coronavirus (3.5%), hMPV (5.3%) and adenovirus (1.4%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (March 24 to March 30, 2013)						Cumulative (August 26, 2012 to March 30, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	4	0	3	0	1	10	1881	0	1443	203	235	323
AB	16	0	5	8	3	55	2298	0	1751	403	144	490
SK	9	0	0	7	2	19	822	0	474	69	279	170
MB	17	0	0	0	17	4	641	0	78	10	553	60
ON	23	0	5	12	6	56	8148	0	3758	318	4072	520
QC	26	0	0	0	26	172	9733	0	546	31	9156	1028
NB	9	0	5	2	2	2	1828	0	768	57	1003	14
NS	6	0	0	1	5	0	361	0	165	6	190	3
PE	0	0	0	0	0	0	106	0	73	3	30	1
NL	2	0	0	0	2	3	711	0	152	0	559	14
Canada	**112**	**0**	**18**	**30**	**64**	**321**	**26529**	**0**	**9208**	**1100**	**16221**	**2623**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (March 17 to March 23, 2013)					Cumulative (Aug. 26, 2012 to March 23, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	12	3	0	9	43	2589	183	843	1563	379
5-19	2	0	0	2	45	1428	64	628	736	538
20-44	19	4	2	13	32	3062	289	1192	1581	319
45-64	16	1	0	15	36	3375	275	1191	1909	315
65+	31	1	4	26	36	9476	102	3583	5791	340
Unknown	1	1	0	0	0	166	20	144	2	0
Total	**81**	**10**	**6**	**65**	**192**	**20096**	**933**	**7581**	**11582**	**1891**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

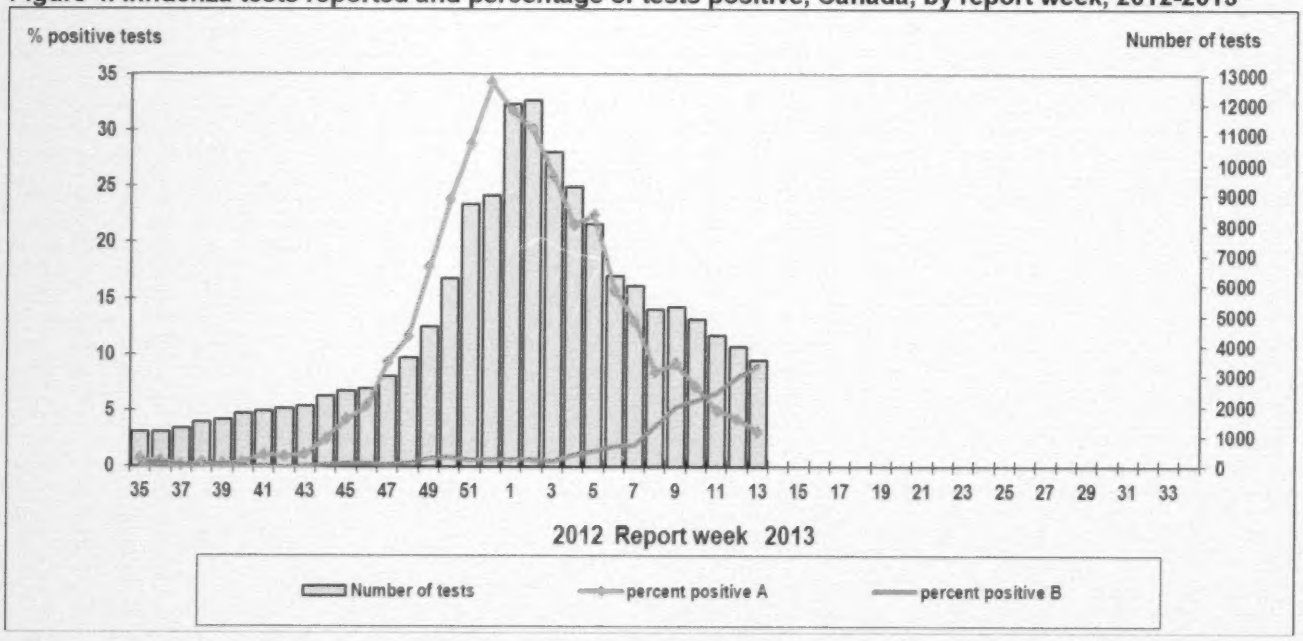
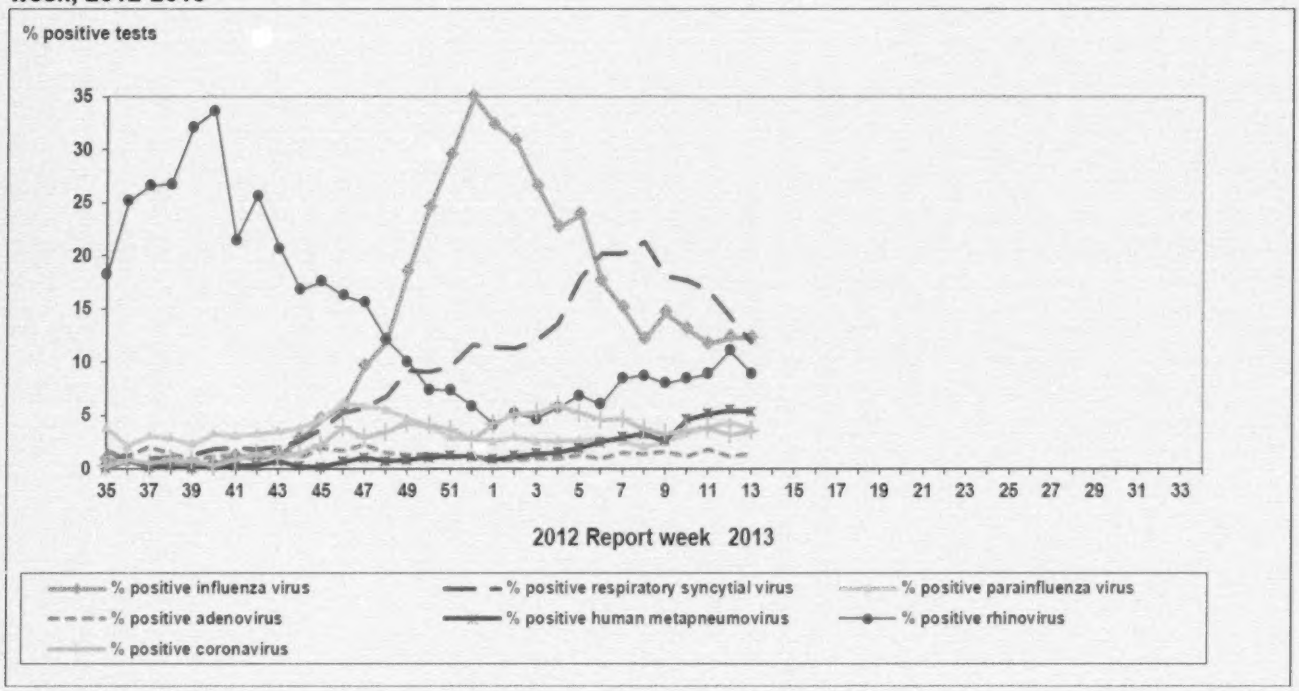


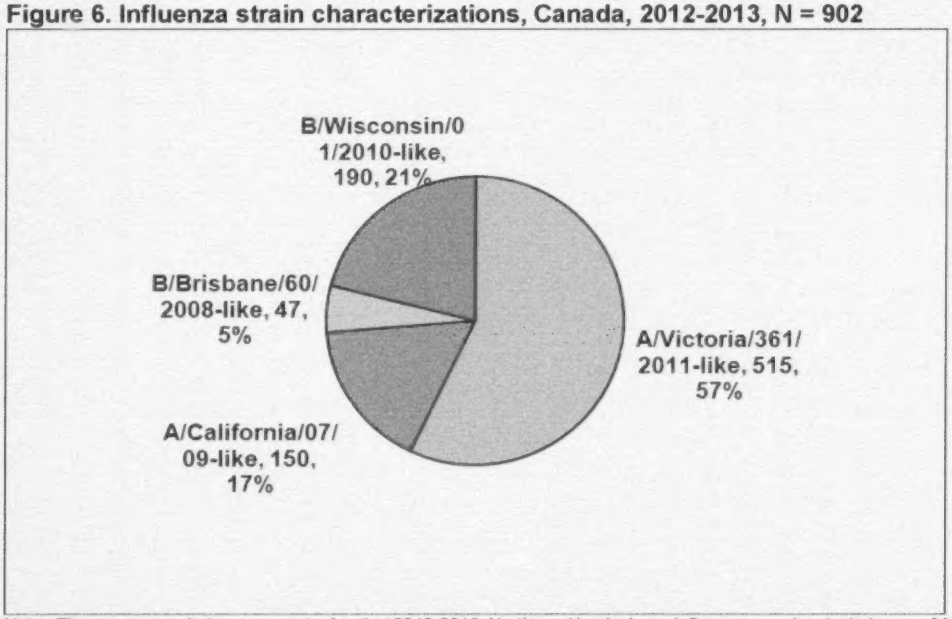
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 902 influenza viruses. The 515 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 150 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 190 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 47 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 902



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 835 influenza viruses for resistance to oseltamivir, and 833 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 937 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

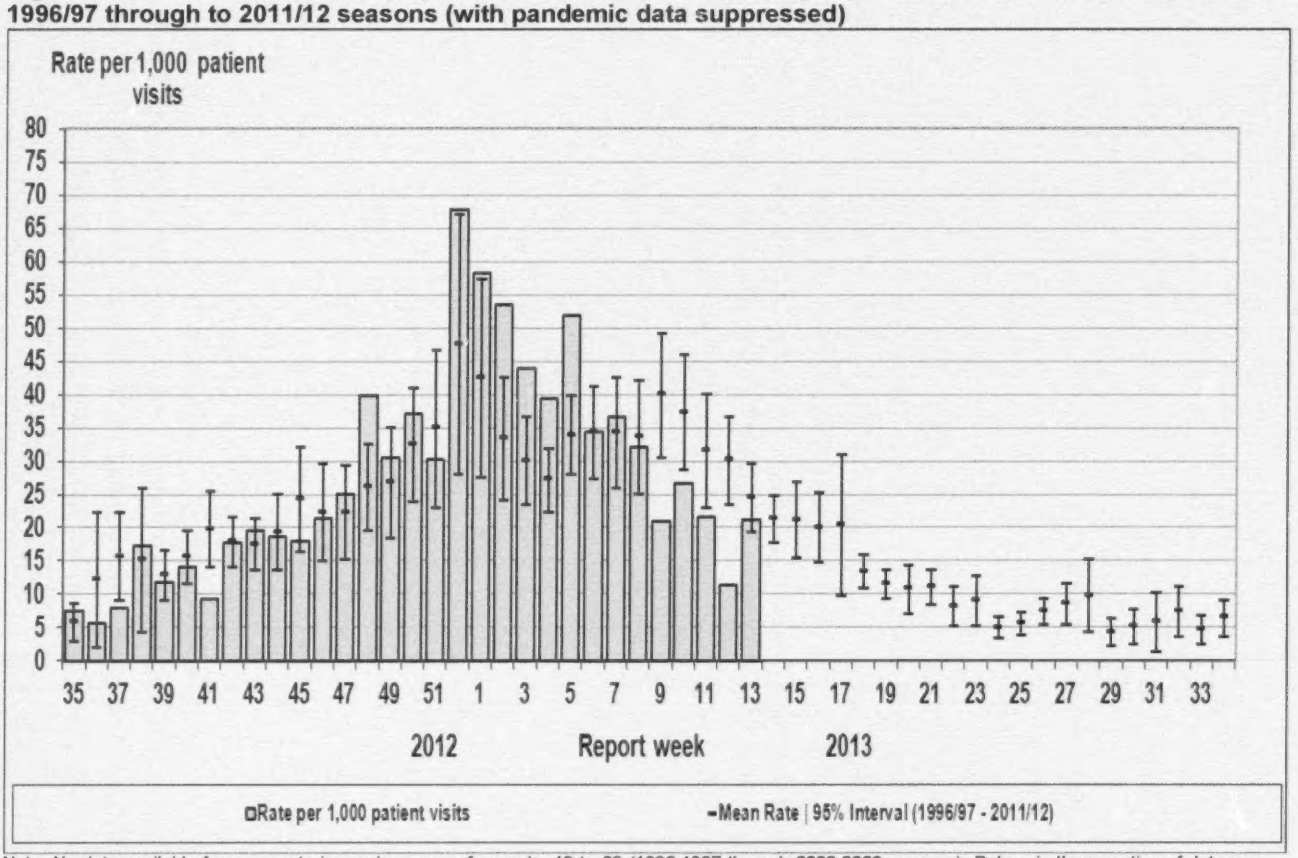
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	486	0	485	0	792	792 (100%)
A (H1N1)	142	0	141	0	145	145 (100%)
B	207	0	207	0	NA*	NA*
TOTAL	835	0	833	0	937	937 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased from 11.3 ILI consultations per 1,000 patient visits in week 12, to 21.2 in week 13 but remains within the expected range (Figure 7). In week 13, the highest consultation rate was observed in children less than 5 years of age (47.9/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

Pharmacy surveillance has been concluded for the 2012-13 influenza season. The antiviral prescription rate peaked in week 01 at 343.9 antiviral prescriptions per 100,000 new prescriptions dispensed. From week 52, 2012 to week 11, 2013, the proportion of prescriptions for influenza antivirals was highest among seniors ≥65 years of age (average 435.1 / 1,000), and lowest for infants under 2 years of age (average 69.5 / 1,000). A summary of final pharmacy surveillance data will be included in the 2012-13 FluWatch annual report.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 13, 19 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 26 in week 12. Among the cases reported in week 13, 73.7% (14) were identified with influenza B and the rest were A(unsubtyped). For the fifth week in a row, the number of influenza B cases exceeded the number of influenza A cases, a reversal of the pattern seen earlier in the season. The age distribution is as follows: one (5.3%) between 0-5 months, 8 (42.1%) between 6-23 months, 4 (21.1%) 2-4 years of age, 4 (21.1%) 5-9 years of age, and 2 (10.5%) 10-16 years of age. Three admissions to intensive care unit (ICU) were reported during the week 13, one child 6-23 months of age (influenza type unknown); and one 2-4 years of age and one 10-16 years of age, both with influenza B.

Since the start of the 2012-13 season, a total of 755 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 611 (80.9%) with influenza A [of which 118 (19.3%) were A(H3N2), 22 (3.6%) were A(H1N1)pdm09 and the remaining 471 were A(unsubtyped); and 144 (19.1%) with influenza B. The distribution of cases by age group is as follows: 141 (18.7%) < 6 months of age; 186 (24.6%) age 6-23 months; 213 (28.2%) age 2-4 years; 151 (20.0%) age 5-9 years; and 64 (8.5%) age 6-10 years. Seventy-four (9.8%) of the 755 cases were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 13, five laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 14 in week 12. Two of the five hospitalizations were cases of influenza A(unsubtyped), two were influenza B and one was untyped. All five cases were ≥65 years of age. One ICU admission was reported during the current week, in a person ≥65 years of age with influenza B. One death was reported, also a case ≥65 years of age, with influenza A(unsubtyped).

From week 45 to week 13, 1,614 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,498 (92.8%) with influenza A [of which 242 were A(H3N2), 13 were A(H1N1)pdm09, and 1,243 were A(unsubtyped)]; 62 (3.8%) with influenza B, and the type has not been reported for 54 cases. The age distribution of hospitalizations is as follows: 1,123 (69.6%) were ≥65 years of age, 315 (19.5%) were 45-64 years, 168 (10.4%) were 20-44 years, and 8 (0.5%) were <20 years of age. ICU admission was required for 176 hospitalizations; the majority of which were adults ≥65 years of age (111; 63.1%). Of the ICU admissions, 68 (38.6%) had at least one co-morbidity, three (1.7%) had no co-morbidities, and 105 had no information to date. A total of 93 deaths have been reported: 16 with influenza A(H3N2), 71 with influenza A(unsubtyped), 5 with influenza B, and one untyped. More than 80% of the deaths (78/93) were in adults ≥65 years of age, 12 (12.9%) were adults 45-64 years of age, and 3 (3.2%) were 20-44 years of age. Thirty-nine deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 13, 83 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (57; 68.7%). The highest proportion of hospitalisations were in adults ≥65 years of age (43.4%), followed by children 0-4 years of age (21.7%). Of the 20 cases with available data, four were admitted to the ICU: two children, one 0-4 and one 5-14 years of age; and two adults, one 20-44 and one 45-64 years of age. No deaths were reported in week 13. Data was not received for the Yukon Territories.

To date this season 4,126 influenza-associated hospitalizations have been reported, of which 93.5% have been influenza A. Of those subtyped (48.4%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of hospitalizations with influenza B continues to increase (6.4% in week 13). Age information was available for 4,123 cases, and the age distribution is as follows: 2,272 (55.1%) were ≥65 years of age; 686 (16.6%) were 45-64 years of age; 368 (8.9%) were 20-44 years of age; 38 (0.9%) were 15-19 years of age; 172 (4.2%) were 5-14 years; and 587 (14.2%) were 0-4 years of age. Of the 1,105 cases with available data, there have been 175 hospitalisations for which admission to an ICU was required; the highest proportions are adults 45-64 years of age, followed by adults ≥65 years of age (36.6% and 34.3%, respectively). To date, 276 deaths have been reported: 229 were adults ≥65 years of age, 30 were adults 45-64 years; 11 were adults 20-44 years, one was a child 5-14 years of age, and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO surveillance report (2 April 2013) summarizes global influenza surveillance data from week 11 (10 to 16 March 2013). In North America, the peak of influenza activity in Mexico occurred about 2 weeks after the early-January peak in Canada and the United States. Although the United States reported a greater proportion of influenza B this season, both Canada and the US have seen an increase in circulation of influenza B in the later part of the season. In the United States, the 2012-13 season has been more severe, in terms of percentage of deaths from pneumonia and influenza, than any since 2003-04. In northern Africa and the eastern Mediterranean region, the peak of influenza activity occurred in early February with a predominance of A(H1N1)pdm09. Influenza activity continued to decrease in temperate regions of Asia, although Mongolia reported sustained ILI activity. Influenza A(H3N2) has been the most commonly detected virus in northern Asia this season. In tropical regions of Asia, influenza activity was low, with circulation of all three types/subtypes. In Central America and the Caribbean, influenza activity was stable or decreasing in recent weeks, with RSV and rhinovirus more commonly detected among cases of acute respiratory illness. Countries in Tropical South America reported low numbers of influenza detections. Most countries in tropical areas of Central Africa reported low-level but persistent influenza circulation, with Rwanda and Tanzania reporting increases in influenza activity in recent weeks. Influenza activity in temperate countries of the southern hemisphere is at inter-seasonal levels.
World Health Organization influenza update

United States: During week 13, influenza activity decreased. Four states reported widespread influenza activity, 7 states reported regional influenza activity, and Puerto Rico and 26 states reported local activity. The national percentage of outpatient visits for ILI was 1.8% which is below the national baseline. Three of 10 regions reported ILI at or above region-specific baseline levels but all states reported low or minimal ILI activity in week 13. The percentage of deaths due to pneumonia and influenza was at or above the epidemic threshold between weeks 01 and 12, but declined to below the epidemic threshold at 7.4% in week 13. The peak percentage of deaths due to pneumonia and influenza was observed in week 03 at 9.8%, which is higher than observed during the previous four seasons. The proportion of tests positive for influenza viruses declined to 11.3% in week 13. Of the positive influenza detections in week 13, 74.8% were influenza B. Since October 1, 2012, the CDC has antigenically characterized 1,970 influenza viruses. Among influenza A(H3N2) viruses, 1,154 (99.7%) were A/Victoria/361/2011-like, and 4 (0.3%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 200 (98.5%) were A/California/7/2009-like, and 3 (1.5%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 426 (70.0%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 183 (30.0%) to the B/Victoria lineage. Two (0.4%) A(H1N1)pdm09 and two (0.1%) A(H3N2) oseltamivir-resistant viruses have been reported to date this season. Among the 11,798 influenza-associated hospitalizations reported to date this season, 81.4% were associated with influenza A of which 96.1% were A(H3N2), and 50% were among adults ≥65 years. A total of 111 influenza-associated paediatric deaths have been reported to date this season, 56 with influenza A, 53 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 13, ILI and acute respiratory illness (ARI) consultation rates declined throughout the region. Most countries reported low or medium intensity of ILI/ARI activity and a decreasing trend. Influenza A(H1N1)pdm09 and influenza B continue to co-circulate. Since the beginning of the season, 64% of detections from sentinel and non-sentinel sources were influenza A [69% A(H1N1)pdm09 and 31% A(H3N2)] and 36% were influenza B. The proportion of influenza B detections has increased from 24% in week 03 to 44% in week 13. In week 13, influenza A continued to be predominant in eastern and central Europe as well as in Greece, Spain, Ireland and the United Kingdom; influenza B or co-circulation of influenza A and B was reported in countries of the northern and western parts of the region.

Among the 578 A(H1N1)pdm09 viruses tested for resistance to oseltamivir from 12 countries, 9 were found to contain the H275Y mutation: three were specimens from hospitalized and outpatients not exposed to oseltamivir, while the other six viruses were detected in hospitalized immunocompromised patients receiving oseltamivir treatment. The number of hospitalizations for severe acute respiratory illness (SARI) are declining, in keeping with ILI/ARI consultation rates.
EuroFlu weekly electronic bulletin

Emerging Respiratory Pathogens

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 12 March 2013.

Influenza A(H7N9): Between 31 March and 5 April 2013, the WHO reported sixteen human cases of influenza A(H7N9) in eastern China. One infection was reported in a child under 10 years of age, four cases were 20-44 years of age, six were 45-64 years, and five were ≥65 years of age. Six cases were fatal, nine were reported to be in critical condition, and one (the paediatric case) reported mild illness. The most recent date of symptom onset was 31 March 2013. More than 520 close contacts of confirmed cases are being closely monitored, and investigation is ongoing into a contact of an earlier confirmed case who developed symptoms of illness. Some of the confirmed cases had contact with animals or with an animal environment. Investigations into the source and route of transmission are ongoing, but there is no evidence to date of ongoing person-to-person spread.

These are the first identified cases of influenza A(H7N9) in humans. Influenza A(H7) viruses generally circulate among birds. Until this event, only a few sporadic cases of human infection with influenza A(H7) viruses had been reported world-wide; most among persons who had close contact with poultry during outbreaks of high-pathogenicity influenza A(H7). WHO is in contact with national authorities and is following the event closely.
WHO Influenza at the human-animal interface
WHO Disease Outbreak News
WHO Frequently Asked Questions on human infection with influenza A(H7N9)

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 13.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus (hCoV-EMC)
No new cases of novel coronavirus (nCoV) have been reported by WHO since 26 March 2013. Since April 2012, 17 laboratory-confirmed cases of nCoV have been identified, including 11 deaths.
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.